

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on March 24, 2008 has been entered.

Response to Arguments

Applicant's arguments with respect to claims 1-15 have been considered but are moot in view of the new ground(s) of rejection.

Claim Objections

Claim 15 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. The limitation set forth in claim 15 that the recesses have a crater shape is present in the base claim 1, and as such, claim 15 fails to further limit claim 1.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1 and 15 are rejected under 35 U.S.C. 102(b) as being anticipated by JP 05088058 A to Chiba et al.

Regarding claims 1 and 15, Chiba teaches a cable (Figure 1) for use in air blowing installation (Use/Advantage section) comprising: at least one transmission medium (1) of electrical or optical signals; and a hollow cylindrical tube (surrounding fibers 1) having an inner space containing the transmission medium, an outer circumferential surface (elements 3, 4) surrounding the inner space, defining an outer diameter of the cable, said outer circumferential surface including a plurality of top-opened recesses (formed in element 4) directly formed into the outer circumferential surface, wherein each of the top-opened recesses has a crater shape and is unfilled (Figure 1 and Use/Advantage section).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 2 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chiba in view of US Patent to Cain et al., number 5,062,685.

Regarding claims 2 and 14, Chiba teaches the limitations of the base claim 1. Chiba does not teach that the transmission medium comprises an optical fiber ribbon having a plurality of optical fibers and a protective layer surrounding the individual optical fibers, wherein the protective layer is formed by applying a liquid-phase UV curable resin to the plural optical fibers and irradiating ultraviolet rays to the resin. Cain teaches a textured surface optical transmission medium (the textured surface implies recesses formed on the outer circumferential surface, sufficient for air blowing installation, column 6, lines 54-61) comprising an optical fiber ribbon (1) having a plurality of optical fibers and a protective layer (2) surrounding the individual optical fibers, wherein the protective layer is formed by applying a liquid-phase UV curable resin to the plural optical fibers and irradiating ultraviolet rays to the resin (column 2, lines 17-25, column 4, lines 19-36, column 6, lines 15-27, and column 8, lines 33-41. It would have been obvious to one of ordinary skill in the art at the time of the invention to include the ribbon fiber and protective layer of Cain as the transmission medium of

Chiba. The motivation would have been to improve alignment and protection of the transmission medium.

Claims 3 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chiba in view of US Patent to Uemiya et al., number 5,345,545.

Regarding claims 3 and 4, Chiba teaches the limitations of the base claim 1. Chiba does not teach that the tube is made of amorphous material containing silicone. Uemiya teaches a layer surrounding optical fibers made of amorphous material containing silicone (column 4, lines 44-55). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the tube of Chiba with the amorphous silicone of Uemiya. The motivation would have been to provide an improved buffer layer (column 4, lines 44-55).

Claims 5 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chiba in view of US Patent to Szum et al., number 6,399,666.

Regarding claims 5 and 6, Chiba teaches the limitations of the base claim 1. Chiba does not teach that the tube is made of polycarbonate, which has a molecular weight of more than 18000. Szum teaches a layer surrounding optical fibers made of polycarbonate, which has a molecular weight of more than 18000 (column 50, line 22 – column 51 – line 18, specifically column 50, lines 64-66). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the tube of Chiba

with the polycarbonate of Szum. The motivation would have been to improve the ease of removing optical fibers from the tube (column 50, lines 41-44)

Claims 7 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chiba in view of US Patent to Benson, Jr. et al., number 5,905,826.

Regarding claims 7 and 8, Chiba teaches the limitations of the base claim 1. Chiba does not teach that the tube is made of polycarbonate containing silicone, wherein the content of the silicone is in a range of 0.01 to 0.5 percent by weight based on the weight of the polycarbonate. Benson teaches a layer surrounding optical fibers made of polycarbonate containing silicone (column 6, lines 9-30). While Benson does not teach that the content of the silicone is in the specific range of 0.01 to 0.5 percent by weight based on the weight of the polycarbonate, Benson does teach the overlapping range of less than 10 percent (column 6, line 25). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the tube of Chiba with the polycarbonate containing silicone, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or working ranges involves only routine skill in the art. In re Aller, 105 USPQ 233. The motivation would have been to improve light transmission through the tube (column 5, line 60 – column 6, line 8).

Claims 9 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chiba in view of US Patent to Cooke et al., number 5,561,731.

Regarding claim 9, Chiba in view of Benson teaches the limitations of the base claim 1. Chiba does not teach that the tube is made of polycarbonate containing silicone having a frictional coefficient of less than 1. Cooke teaches a layer surrounding optical fibers made of material having a frictional coefficient of less than 1 (column 2, lines 5-24). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the tube of Chiba with the material having a frictional coefficient of less than 1 of Cooke. The motivation would have been to improve the ease of inserting fiber in the tube (column 2, lines 5-24 and column 3, lines 31-37).

Regarding claim 12, Chiba teaches the limitations of the base claim 1. Chiba does not teach that the tube has a clearance in the range of 0.5 mm to 1.5 mm. Although Cooke does not teach a tube with the exact clearance range, Cooke does teach a tube surrounding optical fibers with a clearance in the overlapping range of 0 mm – 1 mm (column 8, lines 13,14; 39, 40; 62, and column 9, line 10). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the tube of Chiba such that it has a clearance in a range of 0.5 mm – 1.5 mm, an overlapping range of which is taught by Cooke, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or working ranges involves only routine skill in the art. In re Aller, 105 USPQ 233. The motivation would have been to improve the ease of insertion of the fibers in the tube.

Claims 10, 11, and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chiba in view of US Pre Grant Publication to Castellani et al., number 2004/0197059.

Regarding claims 10 and 11, Chiba teaches the limitations of the base claim 1. Chiba does not teach a water blocking filler provided in an interior empty space of the tube, wherein the water blocking filler includes a jelly compound. Castellani teaches a water blocking filler provided in an interior empty space of a tube surrounding optical fibers, wherein the water blocking filler includes a jelly compound (page 4, paragraph 56). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify cable of Chiba with the water blocking filler of Castellani. The motivation would have been to reduce the possibility of water damage.

Regarding claim 13, Chiba teaches the limitations of the base claim 1. Chiba does not teach an outer diameter in a range of 1.5 mm to 4.0 mm. While Castellani does not teach the exact range, Castellani does teach a cable outer diameter in the overlapping range of 2.0 mm – 6.0 mm, and a preferred subset range of 2.5 mm – 4.0 mm (page 3, paragraph 50). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the cable of Chiba such that the outer diameter is in a range of 1.5 mm – 4.0 mm, a subset of which is taught by Castellani, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or working ranges involves only routine skill in the art. In re Aller, 105 USPQ 233. The motivation would have been to increase the number of fibers inside the tube.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JERRY BLEVINS whose telephone number is (571)272-8581. The examiner can normally be reached on Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frank G. Font can be reached on 571-272-2415. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Jerry M. Blevins/
Examiner, Art Unit 2883

/Frank G Font/
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FGF/JMB
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